

Critical Analysis Team Report #29**4632****6 June 2002**

The Critical Analysis Team (CAT) has completed a brief review of the Silo 3 Mechanical Package. This report highlights the CAT's comments developed during this review.

1. Interface Control Documents are needed to ensure sound project management. This is particularly important given the extreme variation in design maturity between varying systems—several systems are nearly complete (e.g. Vacuum Wand Management System), while others have little or no design completed (e.g. Container Management System) or are Seller designed. A second purpose of ICD's is to identify and track interfaces and responsibility among Fluor Fernald, Jacobs, and the Sellers.
2. The project needs to complete five important analyses to ensure the facility can be supported safely and efficiently by the Fernald operations and maintenance team:
 - Reliability, Availability and Maintainability analysis.
 - Failure Modes and Effects analysis.
 - Human Factors analysis.
 - Safety analysis.
 - Project risk analysis.
3. The turnaround time for this review (essentially one week) is not adequate for an in-depth review even if performed by a seasoned review team. An over-the-shoulder approach further complicates the review effort. As a result, the CAT's review was quite cursory, and the Fluor Fernald review will probably be to the same depth. The CAT predicts that the lack of in-depth design reviews will eventually lead to numerous field design changes.
4. The design does not define sufficient testing requirements. Equipment testing requirements should include detailed requirements for sellers' acceptance criteria, as well as integrated systems tests. Of particular importance is a integrated systems test of both the wand and the container management systems.
5. The project's internal communications do not appear to be working effectively. This is evidenced by the inconsistencies found between several design documents (e.g. three different data sheet formats are used, drawings and data sheets often disagree, etc.) The lack of communication between the designers and the specification writers must be resolved.
6. A testing, sampling and analysis approach needs be developed and included as part of the design. The design should include information outlining the types of samples required, the analyses required, the analytical turnaround times required, and the lab(s) identified to support these needs.

4632

7. At this stage of the project, a defined change control process is essential to project success.
8. The project architecture and philosophy is not clear. For example many important mechanical items are not included in the Mechanical Package (See list below). Further, the Mechanical Package includes some items that appear out of place—namely a document titled “Mechanical Package” that appears to be boilerplate text. The project document architecture should be included to better understand the design, procurement and integration approaches.

Following is a list of pertinent design information the CAT expected to be included in this design package:

- Retrieval bin.
- Retrieval bin hood.
- Excavator Room hood.
- Container Management System (the only thing designed is the pallet).
- Bridge crane (p. 3-2).
- Loading spout mechanism.
- Hoist (VWMS spec, p. 9, line 19).
- Hoist (No performance data presented) (VWMS spec, p. 12, line 21).
- Instruments and Controls.
- Fire Protection system.
- Agitators.
- Tanks.
- Safety Analysis (PSAR or equivalent).
- Dust Collectors.
- Vacuum Blowers.
- Viewing systems.